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BEYER WEAVER & THOMAS LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER
GRAHAM, ANDREW R

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2644	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/929,935	Applicant(s) KING ET AL.	
	Examiner Andrew Graham	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *27 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-6,9,10,13 and 19-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-6,9,10,13 and 19-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 August 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 8/5/05. These drawings are approved and have been entered into the application.

Claim Rejections - 35 USC § 112

2. The applicant's amendments made to Claims 7 in view of the previous rejection(s) under 35 U.S.C. 112 of said claims suffice to overcome the basis of said rejection(s). Accordingly, said rejections are hereby withdrawn.

Response to Arguments

3. Applicant's arguments filed 4/27/05 have been fully considered but they are not persuasive.

On page 7, lines 19-24, the applicant has stated, "Griffiths does not teach a dragging movement of the first center frequency, the second center frequency, and the third center frequency as recited in claims 3 and 9. Frequencies 26, 28, 30 of Figure 1 of Griffiths are not center frequencies of a first frequency filter, a second frequency, and a third frequency filter that form a composite filter, as recited in claims 3 and 9. Frequencies 26, 28, 30 define characteristics of filter characteristic response 22, instead of center frequencies of first second and third filter that form a composite equalization curve". The apparent basis of the applicant's position is recited in lines 25-26 in that "This is indicated in that

the handles 40, 42, 44, for frequencies 26, 28, 30 lie on the characteristic response 22". The examiner respectfully disagrees. The applicant's logic relies on the position that center frequencies for individual filters cannot lie on the characteristic curve of the composite filter. No evidentiary support for this position can be found in the applicant's response, nor is such a configuration of Griffiths precluded by the pertinent claim language. The annotation of Griffiths, however, proves that the handles at points 24,26,28 correspond to center frequencies. See Figure 1, which indicates that handle 38 corresponds to curve 24 which is labeled w_{C1}. Compare this with line 19-21, which states "the frequency of each of other points on the curve corresponding to a gain which is half that at the center frequency w_{cn}, where n is an index designating the filter producing the response number. Thus, 24 has or represents a center frequency (w_{C1} of Figure 1, in view of wC being center frequency in specification). This meets the pertinent limitations of Claims 3 and 9 so far as they are claimed. The difference in Figures between the present application and Griffith (as suggested in lines 26-29 on page 7 of the applicant's response) does not substantiate the allegation of "does not teach".

On page 8, lines 3-11, the applicant has stated,

> In addition, it would not be obvious to combine Griffith with Ballard to obtain the invention as recited in claims 3 and 9. It would not be obvious from Ballard to put an output amplifier on Griffith where the filter curve is the equalization curve of the output amplifier. The curve in Griffith is a filter curve of the filter. There is no motivation for using the curve the (sic) represents the filter curve of the filter 6 as an equalization

> curve for an output amplifier… In addition, the applicant's attorney did not see in col. 4, lines 11-15 and col. 6, lines 33-41 of Ballard, cited by the Examiner, any teaching that the composite equalization curve represents the equalization curve of the output amplifier.

The examiner respectfully disagrees. First, it is noted that the limitation of "wherein the equalization curve represents an equalization curve of the output amplifier" in terms of how the word "represents" relates to the physical structure of the claimed apparatus. Figure 3B of the applicant's specification shows an amplifier 362 connected electrically between an equalizer (344) and output speakers (330). Page 9, lines 13-14 states "The composite curve allows the user to see an accurate equalization curve for the output amplifier connected to the speakers". Thus, the equalization curve of the claimed invention "represents" the output amplifier in the sense that an amplifier is connected in the output path between the equalizer and the output speakers. Alternately stated, the composite curve "represents" the output amplifier in the sense that the signal applied through the amplifier has been equalized in the manner shown in the composite curve on the display. The amplifier does not equalize the signal, but rather, the signal through the amplifier has been equalized. The addition of an output amplifier, as taught by Ballard, to the equalizer and speakers of Griffiths meets this limitation. The path (col. 4, lines 11-15) of Ballard comprises the DSP (analogous to 6 of Griffiths), an amplifier, and speakers (analogous to 16,18 of Griffiths). The order of the components in

this path is implicitly the same as their order of listing in lines 11-15 and by virtue of the fact that the outputs of the DSP are analog (Figure 2) as is appropriate for an amplifier, the fact that speakers clearly cannot come before the DSP or amplifier in the signal path, and the fact that a gain multiplier (considered analogous to the output amplifier) is positioned at the channel outputs in Ballard (col. 5, lines 43-44). Further, chipsets are notoriously well-known in the art to operate at lower voltage levels than that which is appropriate for loudspeakers, as is evidenced by col. 5, lines 41-43, of Ballard, wherein an input pre-amplifier is included to prevent filter overload. Thus, the combination is both obvious and meets the limitations as claimed as a whole, as discussed above, and desirable, as is repeated below.

The remaining remarks by the applicant rely on the issues addressed above or are moot in view of the fact that the pertinent claims have been amended or added. As such, the applicant's further remarks are considered addressed by the above response.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 3 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffiths (GB 2357409) in view of Ballard et al (USPN 5617480), hereafter "Ballard".

Griffiths discloses a multi-filter parametric equalizer system that incorporates a graphical user interface for the adjustment of the parameters of the filter.

Regarding **Claim 3**, Griffiths teaches:

A computer readable medium containing program instructions (system may be implemented in software or combination of hardware and software; page 20, lines 2-13) for controlling a parametric equalizer (6)(page 10, lines 14-27; parameters for configurable filters discussed page 15, line 5-page 17, line 10) comprising

computer readable code for displaying a composite equalization curve (22)(page 9, lines 8-10 and 17-25; page 13, lines 15-20), wherein the composite equalization curve is formed from at least

a first frequency filter with a first center frequency, a second frequency filter with a second center frequency, and a third frequency filter with a third center frequency (e.g., at 26, 28, 30; page 9, lines 17-22; page 10, lines 23-31; page 11, lines 1-2);

computer readable code for allowing a dragging movement of the first center frequency, the second center frequency and the third center frequency (page 9, lines 24-31; page 10, lines 1-13; page 14, lines 4-8; page 15, lines 5-8; Figures 6-13),

In the system of Griffiths, the IIR filters are configurable on the fly(page 11, line 14) and mouse (8) inputs are applied to characteristic processor (102), wherein the processor (102) affects changes in coefficient processor (104), which in turn applied newly calculated coefficients to controller (94) in the filter (6)(page 14, lines 4-27). Griffiths also teaches that typically, "reproduced audio signals are amplified and fed to loud speakers" (page 1, lines 14-15) and that the overall signal processing apparatus 1 may include further components such as amplifiers (page 9, lines 3-4).

However, Griffiths does not clearly specify:

- computer readable code for providing real time changes in equalization according to changes in the equalization curve caused by dragging movements and

- an output amplifier electrically connected to the parametric equalizer, wherein the equalization curve represents an equalization curve of the output amplifier.

Ballard teaches a parametric equalization system with a graphical user interface.

Specifically regarding Claim 3, Ballard teaches:

computer readable code (filtering performed by software running on DSP; col. 5, lines 13-14 and 45-50) for providing real time changes in equalization according to changes in the equalization curve caused by dragging movements (col. 6, lines 22-53; col. 7, lines 3-8) and

an output amplifier electrically connected to the parametric equalizer ("path", particularly between DSP, amplifier, set of

speakers, col. 4, lines 18-22), wherein the equalization curve represents an equalization curve of the output amplifier (DSP in reproducer (14) applies alterations from mouse (20) of PC (16); col. 4, lines 11-15; col. 6, lines 33-41).

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to implement an amplifier between the filtering component (6) and the loudspeakers (16,18) of Griffiths, as taught by Ballard, as well as provide the output of the filtering component (6) to such an amplifier and loudspeakers during an equalization process, as is also taught by Ballard. The motivation behind the use of the amplifier would have been the adaptation of a computer output signal amplitude to an amplitude appropriate for a set of loudspeaker; certain loudspeakers are well-known in the art to be able to process and output a signal with a larger amplitude than computer based output components. Electrical signal amplitude, when applied to output speakers, is well known in the art to parallel the amplitude of the reproduced audio signal. Griffiths states that reproduced signals are typically amplified and output by speakers, and that the disclosed system may include an amplifier; Ballard clearly teaches the relative signal path connection for such an amplifier. The almost immediate application of the adjusted equalization parameters to the signal output through such an amplifier and loudspeakers of the modified system would have enabled an audio designer or sound engineer to view a signal analysis and adjust the

signal equalization in real time, and in accordance with actual reproduction conditions, as is taught by Ballard.

Regarding **Claim 9**, please refer above to the rejection of similar limitations of Claim 3 regarding the code for "displaying", "allowing a dragging movement of the first center frequency", and "providing". Griffiths also that the gain and/or center frequency of a resonance filter may be altered (page 15, lines 6-8). Figure 11 shows a resonance filter (page 8, lines 7-8). The figure shows that the frequency and gain may be changed from the same point; in the context of an x-y pole plot of gain versus frequency, these two adjustment directions are considered to be perpendicular. The "f" is disclosed as center frequency and "g" is inferred to represent gain, further detailed in association with Figure 13 (page 6, lines 13-16; page 15, lines 7-30; col. 17, lines 11-22, noting f_c and g_r). Accordingly, these teachings in regard to Figure 11 equate to "computer readable code for allowing a dragging movement of a first gain, wherein the dragging movement of the first gain is accomplished by dragging the first center frequency object in a second direction perpendicular to the first direction" and "wherein the dragging movement of the first center frequency is accomplished by dragging a first center frequency object in first direction".

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffiths in view of Ballard as applied above, and in further view of Zhou et al (USPN 6999826 B1), hereafter "Zhou".

As detailed above, Griffiths discloses a parametric speaker interface the allows for the graphical manipulation of individual filters in the system. Ballard discloses the concept of having an amplifier in the output path of a system with an equalizer, as well as a preference for immediate update of equalizer parameters.

Regarding **Claim 4**, Griffiths discloses that the multiple configurable filters, corresponding to curves 24, 25m and 26, , 28, and 30 (page 10, line 14-page 11, line 2) and that each of the filters are being configurable according to a plurality of filter characteristic responses (page 14, line 30-page 15, line 17 and page 19, lines 17-20). The various possible filter types, along with their adjustment handles, are shown in Figures 6-12 and suggest "equalization curves" (page 15, line 17-page 10). Such filter parameters are stored in a data store 114 (page 13, lines 25-27). Ballard teaches that plural filenames, each of which correspond to stored equalizer parameter values, may be displayed for user selection (col. 8, lines 63-67). A user is then able to select a filename, at which time the coefficients are sent to the DSP and also plotted on the screen (col. 9, lines 1-4). The various stored filter parameters and filenames teach or at least suggest a "plurality of presets" for the filters in the underlying parametric filters.

However, Griffiths in view of Ballard does not clearly teach or suggest:

- code for simultaneously displaying equalization curves of a plurality of presets

Zhou discloses a parametric equalizer system with a user interface.

Specifically regarding Claim 4, Zhou in view of the teachings of Griffiths and Ballard teach or at least suggest:

computer readable code (code 32 underlying interface 82, Figure 8, in view of code for displaying multiple handles for multiple filters 24,26,28 in Griffiths, Figure 1) for simultaneously displaying equalization curves (multiple filters, Low Med, High, and corresponding controls 84,86, col. 5, lines 48-59, in view of curve-based manner in which controls for each filter are shown in Griffiths, Figures 6-12, noting that Zhou specifically states that other forms of the equalizer interface may be employed, col. 5, lines 54-56)

for a plurality of presents (values in filter settings in interface 82 of Zhou are default and thus 'preset' parameter values, col. 5, lines 56-59)

To one of ordinary skill in the art at the time the invention was made, it would have been implement multiple filter controls, such as shown in Figures 6-12 of Griffiths in view of Ballard, into a common display that presents default parameters, such as is done for multiple filters in the interface (Figure 8) of Zhou. Such an interface that unites multiple of the implemented filter types (Figures 6-12) and displays default settings of the filters of Griffiths would have, according to the implementation of Zhou, enabled a user to manually modify the equalizer parameters for each band. It is noted that the general concept of such a display is already shown in Figure 1 of

Griffiths; Zhou also discloses that such a common interface, as implemented, would have enabled users to be notified of choices that may lead to inferior sound quality. The presentation of equalizer options based on default or preset values would have enabled users to modify the settings prior to the implementation into the equalizer. Such default parameters are also disclosed as insuring a minimum threshold of sound quality and providing improved sound quality in most instances. The use of the handle based control of Griffiths in such an interface arrangement (82) of Zhou would have enabled the desired adjustments to be correspondingly reflected in the adjustments to the filter characteristic response.

Regarding **Claim 5**, Figure 12 of Griffiths illustrates adjustment handles for manipulating the half frequencies of a resonant filter. These half amplitude points define the normalized bandwidth of the filter response (page 5, lines 28-31; col. 6, lines 1-2). Griffiths also teaches that bandwidths of individual filters that make up the characteristic curve (22) may overlap (page 9, lines 15-22). Accordingly, the adjustability of the half gain frequencies of a utilized filter, in the context of multiple individual filters having overlapping or coinciding bandwidths is considered to equate to "the first frequency has a first bandwidth and the second frequency filter has a second bandwidth" and "code for allowing a dragging movement of the first bandwidth and the second bandwidth".

5. **Claim 6 is** rejected under 35 U.S.C. 103(a) as being unpatentable over Griffiths in view of Ballard and Zhou as applied above, and in further view of Wiser (USPGPUB 2003/0009247).

As detailed above, Griffiths discloses a multi-filter parametric equalizer system that incorporates a graphical user interface for the adjustment of the parameters of the filter. Ballard teaches a parametric equalization system with a graphical user interface, wherein the adjustments made to the parameters are applied to the reproduction audio system almost immediately. Zhou discloses the common display of a plurality of default settings.

Regarding Claim 6, Griffiths discloses that a plurality of filter types may be associated with the individual filters in the composite processing of a signal, as well as general parameters for said filter types (pages 14, line 30-page 17, line 10).

However, Griffiths in view of Ballard and Zhou does not disclose the manner in which such filters may be selected, and accordingly does not clearly teach:

- code for providing a pull down menu for selecting a parametric filter type

Wiser teaches an audio signal processing system that stores a plurality of profiles for audio encoding, wherein parameters associated with said profiles include equalization. Figure 14 illustrates a graphical user interface (GUI) window for signal equalization. Through the use of this window, four individual filters associated with filter boxes (1414A-D) may be selected, and the type,

gain, center frequencies, and Q factors of these filters may be adjusted (page 10, para. 0099). The filter type (504A) field is specifically selected through the use of a pull down menu (1416) (page 10, para. 0099). The programming that supports the functionality behind this menu reads on "code for providing a pull down menu for selecting a parametric filter type".

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to include a filter type menu, such as that shown by Wiser, as part of the GUI on the display of the system of Griffiths in view of Ballard and Zhou. The motivation behind such a modification would have been that such a menu would have provided a visual manner for selecting the filter types associated with the individual configurable filters of the system of Griffiths in view of Ballard and Zhou.

5. **Claims 10 and 19-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffiths in view of Ballard as applied above, and in further view of Wiser (USPGPUB 2003/0009247).

As detailed above, Griffiths discloses a multi-filter parametric equalizer system that incorporates a graphical user interface for the adjustment of the parameters of the filter. Ballard teaches a parametric equalization system with a graphical user interface, wherein the adjustments made to the parameters are applied to the reproduction audio system almost immediately.

Regarding **Claim 10**, please refer above to the rejection of similar limitations of Claims 3 and 9 regarding the code for "displaying…", "allowing a dragging movement of the first center frequency…", "providing…", and "wherein the dragging…".

Further regarding Claim 10, Griffiths discloses that a plurality of filter types may be associated with the individual filters in the composite processing of a signal, as well as general parameters for said filter types (pages 14, line 30-page 17, line 10).

However, Griffiths in view of Ballard does not disclose the manner in which such filters may be selected, and accordingly does not clearly teach:

- code that allows a user to designate the first frequency filter as one of an equalization curve, a low pass filter, a high pass filter, a notch filter, a low shelf filter, and a high shelf filter

Wiser teaches an audio signal processing system that stores a plurality of profiles for audio encoding, wherein parameters associated with said profiles include equalization. Figure 14 illustrates a graphical user interface (GUI) window for signal equalization. Through the use of this window, four individual filters associated with filter boxes (1414A-D) may be selected, and the type, gain, center frequencies, and Q factors of these filters may be adjusted (page 10, para. 0099). The filter type (504A) field is specifically selected through the use of a pull down menu (1416) (page

10, para. 0099). Disclosed filter types for Wiser as a part of this menu include "high shelf", "low shelf", "high pass", (Figure 14 and page 10, para. 0099). Griffiths also discloses the filter types of "low pass", "notch", and "asymmetric shelf" (noting that this latter type at least meets one reasonable interpretation of the file associated under the general label "equalization curve") (page 16, lines 16-18). Griffiths also discloses that a single configurable filter may affect the overall equalization filtering (col. 19, lines 20-23). The programming that supports the functionality behind this menu, in view of the additional filter types of Griffiths reads on "ode that allows a user to designate the first frequency filter as one of an equalization curve, a low pass filter, a high pass filter, a notch filter, a low shelf filter, and a high shelf filter".

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to include a filter type menu, such as that shown by Wiser, as part of the GUI on the display of the system of Griffiths in view of Ballard. The motivation behind such a modification would have been that such a menu would have provided a visual manner for selecting the filter types associated with the individual configurable filters of the system of Griffiths in view of Ballard and Zhou. The filter types of Wiser would have increased the possible configurations available for the composite filter of Griffiths in view of Ballard.

Regarding **Claim 23**, Griffiths in view of Ballard teaches or at least suggests:

code for displaying a a first filter curve (24, implemented as one of Figures 6-13 notably 11) with a first center frequency (f or fc in Figures 6-13) (page 15, lines 5-page 19, line 20, particularly discussed with regards to filter of Figure 13; frequency curves 6-13 as applied to individual filters 70 as adjusted by 104, page 10, line 14-page 14, line 29)

a second filter curve (26, implemented as one of Figures 6-13, notably 11) with a first center frequency (f or fc in Figures 6-13) (page 15, lines 5-page 19, line 20, particularly discussed with regards to filter of Figure 13; frequency curves 6-13 as applied to individual filters 70 as adjusted by 104, page 10, line 14-page 14, line 29)

a third filter curve (28, implemented as one of Figures 6-13, notably 11) with a first center frequency (f or fc in Figures 6-13) (page 15, lines 5-page 19, line 20, particularly discussed with regards to filter of Figure 13; frequency curves 6-13 as applied to individual filters 70 as adjusted by 104, page 10, line 14-page 14, line 29)

wherein the composite equalization curve (22) is a sum of the first filter curve, the second filter curve, and the third filter curve (page 10, lines 23-27, filter characteristics {such as shown in Figures 6-13} 'make up' curve 22, in view of mixed or summed combination in Figures 3a and 3b, page 11, lines 3-17)

It is again noted that curves or individual filter characteristics (Figures 6-13, particularly 11) are involved with the manner in which the individual filters are controlled in the system of Griffiths (page 15, lines 27-page 19, line 20 and particularly page 16, lines 5-6 and page 17, lines 13-22).

While Griffiths teaches that curves of filter characteristics 24,26,28,30 (such as is represented in Figure 11) make up curve 22 (page 10, line 24-page 11, line 2, see also Figure 1, which at least evidences involvement of said filters 70), Griffiths in view of Ballard does not clearly teach or suggest:

computer readable code for simultaneously displaying the composite equalization curve, the first filter curve with a first center frequency, the second filter curve with a second center frequency, and the third filter curve with a third center frequency

However, the common, simultaneous display of an aggregate or composite filter characteristic/curve, along with the controls for the individual filters (which also display curves, per the manner of visual control of Griffiths) from which the aggregate or composite filter characteristic/curve is derived was known in the art at the time the invention was made as is disclosed by Wiser.

Specifically with regards to Claim 23, Griffiths in view of the teachings of Ballard and Wiser at least suggests:

computer readable code (code behind display of Figure 14 of Wiser) for simultaneously displaying (in same window at same time,

Figure 14 of Wiser) the composite equalization curve (curve 22 of Griffiths in view of curve 1404 of Wiser, para. 0096, 0100),

the first filter curve with a first center frequency (1414A control of filter in Wiser, para. 0099, in view of manner of visual control of and individual filter in Griffiths, such as is shown in Figures 6-13 and particularly 11 and 13)

the second filter curve with a second center frequency (1414B control of filter in Wiser, para. 0099, in view of manner of visual control of and individual filter in Griffiths, such as is shown in Figures 6-13 and particularly 11 and 13)

and the third filter curve with a third center frequency

(1414C control of filter in Wiser, para. 0099, in view of manner of visual control of and individual filter in Griffiths, such as is shown in Figures 6-13 and particularly 11 and 13)

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to implement the display and curve-based controls of the composite and individual filter characteristics of Griffiths in view of Ballard in a common window, such as that shown in Figure 14 with regards to the display and controls of the aggregate and individual filters in the system of Wiser. The motivation behind such a modification would have been that such a display arrangement would have enabled a user to specify several filters applied to the processed signal of Griffiths in view of Ballard in order to form the collectively filtered output signal. Griffiths teaches that the composite curve and individual curves can be displayed (Figure 1 and

Figures 6-13), and teaches that control of both can be affected based on the display 4. Griffiths also discloses that the individual parametric filter types, upon utilization, have draggable or adjustable handles, though the manner in which such controls and displays are ultimately implemented on any such display 4 are not particularly detailed. The Figure 14 layout and manner of simultaneous display and potential arrangement provides tangible details regarding one desirable method of the implicit interconnect of visual display and controls in the system of Griffiths. This arrangement of Wiser with a common screen for filtering is disclosed as facilitating rapid iterative processing of digital audio signals to quickly to achieve a satisfactory combination of filtering with the other components in the system. Such a display (Figure 14) is disclosed as taking part in enabling a sound engineer to manipulate every step of the overall processing at once, which again, ultimately accelerates the empirical process of determining a satisfactory amount of applied filtering. The layout and underlying software of Wiser would have at least enabled the processing system to be implemented on a general purpose PC, such as that commercially available from International Business Machines using a commercially available OS, such as Windows, as is disclosed by Wiser. Again, the interface format of Wiser facilitates user control of the underlying signal processor, again, an area of detail in which the teachings of Griffith are lacking, but implicit in terms of depth. Again, such a layout (Figure 14) is taken in view of the display generally (Figure 1) of

Griffiths, whereby the display and underlying individual filter characteristics are influenced (page 14, lines 1-29).

Regarding **Claims 19 and 21**, please refer above to the rejection of the similar limitations of Claim 23, noting that the limitations of Claim 3 and 9 are addressed above with regards to Griffiths in view of Ballard.

Regarding **Claims 20 and 22**, Griffiths particularly teaches:

wherein the first filter curve, the second filter curve, and the third filter curve are Gaussian equalization curves (first second third filters of Griffiths may be implemented as shown in Figures 11-13)

6. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Griffiths in view of Ballard as applied above, and in further view of Mietling (USPN 6385322).

As detailed above, Griffiths discloses a multi-filter parametric equalizer system that incorporates a graphical user interface for the adjustment of the parameters of the filter. Ballard teaches a parametric equalization system with a graphical user interface, wherein the adjustments made to the parameters are applied to the reproduction audio system almost immediately.

Regarding **Claim 13**, please refer above to the rejection of similar limitations of Claim 3 regarding the code for "displaying", "allowing a dragging movement of the first center frequency", and "providing".

Griffiths discloses the inclusion of speakers (16,18) in the system (Figure 1) and Ballard teaches the inclusion of speakers in the audio signal path (col. 4, lines 18-22). Griffiths teaches that different equalization parameters may be stored (page 13, lines 35-31) and Ballard discloses that filter settings may be both stored by filename and retrieved from storage and applied to the DSP unit (col. 8, lines 62-67; col. 9, lines 1-4). The parts of either of the programs in these references that enables this parameter storage reads on "computer readable code for saving equalization parameters as a preset".

Griffiths in view of Ballard does not specify:

- computer readable code for identifying a preset with a speaker type
- computer readable code for loading a preset according to speaker type

Mietling teaches a method of operating a system with a power amplifying and signal processing circuit with a variety of loudspeaker models. Identification of a speaker (4) is based on data stored in a memory (6) in the speaker (4) and the transmission of this data to a configuration circuit (3) in the amplifier (2)(col. 5, lines 3-22).

In particular regards to **Claim 13**, Mietling teaches:

computer readable code for identifying a preset with a speaker type (configuration circuit (3) receives data, such as model number, and based on data stored in circuit (3), draws conclusions about loudspeaker parameters; col. 6, lines 20-34)

computer readable code for loading a preset according to speaker type (data saved in configuration circuit (3) is, after conclusions are drawn about loudspeaker parameters, is available for the configuration; col. 6, lines 30-38; As noted above, Ballard also notes sending data to DSP unit)

The signal processing performed by the amplifier and audio processing circuit is particularly noted by Mietling as pertaining to equalization (col. 6, lines 54-62).

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to incorporate the speaker model identification and corresponding operation parameter configuring components of Mietling as part of the equalization storage and loading functions of the system of Griffiths in view of Ballard. The motivation behind such a modification would have been that such loudspeaker identification would have provided a manner for automatically recalling stored operation parameters, parameters previously designated as preferred or optimal, regardless of the different combinations of the audio processing circuits and the output speakers. Such component-based configuration would have prevented loudspeaker overloading and possible loudspeaker damage, as is disclosed by Mietling, as well as enabled configuration to be based on changing parameters of a particular loudspeaker.

7. **Claim 24** is rejected under 35 U.S.C. 103 as being unpatentable over Griffiths in view of Ballard and Mietling as applied above and in further view of Wiser.

As detailed above, Griffiths discloses a multi-filter parametric equalizer system that incorporates a graphical user interface for the adjustment of the parameters of the filter. Ballard teaches a parametric equalization system with a graphical user interface, wherein the adjustments made to the parameters are applied to the reproduction audio system almost immediately. Mietling teaches a method of operating a system with a power amplifying and signal processing circuit with a variety of loudspeaker models.

Regarding **Claim 24**, Griffiths in view of Ballard and Mietling teaches or at least suggests:

code for displaying a a first filter curve (24, implemented as one of Figures 6-13 notably 11) with a first center frequency (f or fc in Figures 6-13) (page 15, lines 5-page 19, line 20, particularly discussed with regards to filter of Figure 13; frequency curves 6-13 as applied to individual filters 70 as adjusted by 104, page 10, line 14-page 14, line 29)

a second filter curve (26, implemented as one of Figures 6-13, notably 11) with a first center frequency (f or fc in Figures 6-13) (page 15, lines 5-page 19, line 20, particularly discussed with regards to filter of Figure 13; frequency curves 6-13 as applied to individual filters 70 as adjusted by 104, page 10, line 14-page 14, line 29)

a third filter curve (28, implemented as one of Figures 6-13, notably 11) with a first center frequency (f or fc in Figures 6-13) (page 15, lines 5-page 19, line 20, particularly discussed with regards to filter of Figure 13; frequency curves 6-13 as applied to individual filters 70 as adjusted by 104, page 10, line 14-page 14, line 29)

wherein the composite equalization curve (22) is a sum of the first filter curve, the second filter curve, and the third filter curve (page 10, lines 23-27, filter characteristics {such as shown in Figures 6-13} 'make up' curve 22, in view of mixed or summed combination in Figures 3a and 3b, page 11, lines 3-17)

It is again noted that curves or individual filter characteristics (Figures 6-13, particularly 11) are involved with the manner in which the individual filters are controlled in the system of Griffiths (page 15, lines 27-page 19, line 20 and particularly page 16, lines 5-6 and page 17, lines 13-22).

While Griffiths teaches that curves of filter characteristics 24,26,28,30 (such as is represented in Figure 11) make up curve 22 (page 10, line 24-page 11, line 2, see also Figure 1, which at least evidences involvement of said filters 70), Griffiths in view of Ballard and Mietling does not clearly teach or suggest:

computer readable code for simultaneously displaying the composite equalization curve, the first filter curve with a first

center frequency, the second filter curve with a second center frequency, and the third filter curve with a third center frequency

However, the common, simultaneous display of an aggregate or composite filter characteristic/curve, along with the controls for the individual filters (which also display curves, per the manner of visual control of Griffiths) from which the aggregate or composite filter characteristic/curve is derived was known in the art at the time the invention was made as is disclosed by Wiser.

Specifically with regards to Claim 24, Griffiths in view of the teachings of Ballard, Mietling, and Wiser at least suggests:

computer readable code (code behind display of Figure 14 of Wiser) for simultaneously displaying (in same window at same time, Figure 14 of Wiser) the composite equalization curve (curve 22 of Griffiths in view of curve 1404 of Wiser, para. 0096, 0100),

the first filter curve with a first center frequency (1414A control of filter in Wiser, para. 0099, in view of manner of visual control of and individual filter in Griffiths, such as is shown in Figures 6-13 and particularly 11 and 13)

the second filter curve with a second center frequency (1414B control of filter in Wiser, para. 0099, in view of manner of visual control of and individual filter in Griffiths, such as is shown in Figures 6-13 and particularly 11 and 13)

and the third filter curve with a third center frequency

(1414C control of filter in Wiser, para. 0099, in view of manner of visual control of and individual filter in Griffiths, such as is shown in Figures 6-13 and particularly 11 and 13)

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to implement the display and curve-based controls of the composite and individual filter characteristics of Griffiths in view of Ballard and Mietling in a common window, such as that shown in Figure 14 with regards to the display and controls of the aggregate and individual filters in the system of Wiser. The motivation behind such a modification would have been that such a display arrangement would have enabled a user to specify several filters applied to the processed signal of Griffiths in view of Ballard and Mietling in order to form the collectively filtered output signal. Griffiths teaches that the composite curve and individual curves can be displayed (Figure 1 and Figures 6-13), and teaches that control of both can be affected based on the display 4. Griffiths also discloses that the individual parametric filter types, upon utilization, have draggable or adjustable handles, though the manner in which such controls and displays are ultimately implemented on any such display 4 are not particularly detailed. The Figure 14 layout and manner of simultaneous display and potential arrangement provides tangible details regarding one desirable method of the implicit interconnect of visual display and controls in the system of Griffiths. This arrangement of Wiser with a common screen for filtering is disclosed as facilitating rapid iterative processing of

digital audio signals to quickly to achieve a satisfactory combination of filtering with the other components in the system. Such a display (Figure 14) is disclosed as taking part in enabling a sound engineer to manipulate every step of the overall processing at once, which again, ultimately accelerates the empirical process of determining a satisfactory amount of applied filtering. The layout and underlying software of Wiser would have at least enabled the processing system to be implemented on a general purpose PC, such as that commercially available from International Business Machines using a commercially available OS, such as Windows, as is disclosed by Wiser. Again, the interface format of Wiser facilitates user control of the underlying signal processor, again, an area of detail in which the teachings of Griffith are lacking, but implicit in terms of depth. Again, such a layout (Figure 14) is taken in view of the display generally (Figure 1) of Griffiths, whereby the display and underlying individual filter characteristics are influenced (page 14, lines 1-29).

8. **Claims 25 and 27-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffiths in view of Wiser.

As detailed above, Griffiths discloses a multi-filter parametric equalizer system that incorporates a graphical user interface for the adjustment of the parameters of the filter.

Regarding **Claim 25**, Griffiths discloses:

A computer readable medium containing program instructions (system may be implemented in software or combination of hardware and

software; page 20, lines 2-13) for controlling a parametric equalizer (6)(filtering operation is parametric equalization, page 8, lines 14-17; general structure on page 10, lines 14-27; parameters for configurable filters discussed page 15, line 5-page 17, line 10) comprising

computer readable code for displaying a composite equalization curve (22)(code for display, page 9, lines 8-10 and 17-25; page 13, lines 15-20),

a first filter curve (24, implemented as one of Figures 6-13 notably 11) with a first center frequency (f or fc in Figures 6-13) (page 15, lines 5-page 19, line 20, particularly discussed with regards to filter of Figure 13; frequency curves 6-13 as applied to individual filters 70 as adjusted by 104, page 10, line 14-page 14, line 29)

a second filter curve (26, implemented as one of Figures 6-13, notably 11) with a first center frequency (f or fc in Figures 6-13) (page 15, lines 5-page 19, line 20, particularly discussed with regards to filter of Figure 13; frequency curves 6-13 as applied to individual filters 70 as adjusted by 104, page 10, line 14-page 14, line 29)

a third filter curve (28, implemented as one of Figures 6-13, notably 11) with a first center frequency (f or fc in Figures 6-13) (page 15, lines 5-page 19, line 20, particularly discussed with regards to filter of Figure 13; frequency curves 6-13 as applied to

individual filters 70 as adjusted by 104, page 10, line 14-page 14, line 29)

wherein the composite equalization curve (22) is a sum of the first filter curve, the second filter curve, and the third filter curve (page 10, lines 23-27, filter characteristics {such as shown in Figures 6-13} 'make up' curve 22, in view of mixed or summed combination in Figures 3a and 3b, page 11, lines 3-17)

computer readable code for allowing a dragging movement of the first center frequency, the second center frequency and the third center frequency (page 9, lines 24-31; page 10, lines 1-13; page 14, lines 4-8; page 15, lines 5-8; see also the arrows for f,fc in Figures 6-13)

It is again noted that curves or individual filter characteristics (Figures 6-13, particularly 11) are involved with the manner in which the individual filters are controlled in the system of Griffiths (page 15, lines 27-page 19, line 20 and particularly page 16, lines 5-6 and page 17, lines 13-22).

While Griffiths teaches that curves of filter characteristics 24,26,28,30 (such as is represented in Figure 11) make up curve 22 (page 10, line 24-page 11, line 2, see also Figure 1, which at least evidences involvement of said filters 70), Griffiths does not clearly teach or suggest:

computer readable code for simultaneously displaying the composite equalization curve, the first filter curve with a first

center frequency, the second filter curve with a second center frequency, and the third filter curve with a third center frequency

However, the common, simultaneous display of an aggregate or composite filter characteristic/curve, along with the controls for the individual filters (which also display curves, per the manner of visual control of Griffiths) from which the aggregate or composite filter characteristic/curve is derived was known in the art at the time the invention was made as is disclosed by Wiser.

Specifically with regards to Claim 25, Griffiths in view of the teachings of Wiser at least suggests:

computer readable code (code behind display of Figure 14 of Wiser) for simultaneously displaying (in same window at same time, Figure 14 of Wiser) the composite equalization curve (curve 22 of Griffiths in view of curve 1404 of Wiser, para. 0096, 0100),

the first filter curve with a first center frequency (1414A control of filter in Wiser, para. 0099, in view of manner of visual control of and individual filter in Griffiths, such as is shown in Figures 6-13 and particularly 11 and 13)

the second filter curve with a second center frequency (1414B control of filter in Wiser, para. 0099, in view of manner of visual control of and individual filter in Griffiths, such as is shown in Figures 6-13 and particularly 11 and 13)

and the third filter curve with a third center frequency

(1414C control of filter in Wiser, para. 0099, in view of manner of visual control of and individual filter in Griffiths, such as is shown in Figures 6-13 and particularly 11 and 13)

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to implement the display and curve-based controls of the composite and individual filter characteristics of Griffiths in a common window, such as that shown in Figure 14 with regards to the display and controls of the aggregate and individual filters in the system of Wiser. The motivation behind such a modification would have been that such a display arrangement would have enabled a user to specify several filters applied to the processed signal of Griffiths in order to form the collectively filtered output signal. Griffiths teaches that the composite curve and individual curves can be displayed (Figure 1 and Figures 6-13), and teaches that control of both can be affected based on the display 4. Griffiths also discloses that the individual parametric filter types, upon utilization, have draggable or adjustable handles, though the manner in which such controls and displays are ultimately implemented on any such display 4 are not particularly detailed. The Figure 14 layout and manner of simultaneous display and potential arrangement provides tangible details regarding one desirable method of the implicit interconnect of visual display and controls in the system of Griffiths. This arrangement of Wiser with a common screen for filtering is disclosed as facilitating rapid iterative processing of digital audio signals to quickly to achieve a satisfactory

combination of filtering with the other components in the system. Such a display (Figure 14) is disclosed as taking part in enabling a sound engineer to manipulate every step of the overall processing at once, which again, ultimately accelerates the empirical process of determining a satisfactory amount of applied filtering. The layout and underlying software of Wiser would have at least enabled the processing system to be implemented on a general purpose PC, such as that commercially available from International Business Machines using a commercially available OS, such as Windows, as is disclosed by Wiser. Again, the interface format of Wiser facilitates user control of the underlying signal processor, again, an area of detail in which the teachings of Griffith are lacking, but implicit in terms of depth. Again, such a layout (Figure 14) is taken in view of the display generally (Figure 1) of Griffiths, whereby the display and underlying individual filter characteristics are influenced (page 14, lines 1-29).

Regarding Claim 27, Griffiths particularly teaches:

wherein the first filter curve (implemented as any of Figures 6-7 or 11-13, for example) has a first bandwidth and the second filter curve (implemented as any of Figures 6-7 or 11-13, for example) has a second bandwidth (bandwidths of filters, page 9, lines 12-17 in view of shown filter characteristics, such as Figures 11 and 13, page 17, line 11-page 18, line 7) and

wherein computer readable code for allowing the dragging movement, further comprises computer readable code for allowing a

dragging movement of the first bandwidth and the second bandwidth (see left-right arrows of q of Figure 11 or f1,f2 of Figure 12, or even handles for f in Figures 6 and 7).

Regarding Claim 28, Griffiths particularly teaches:

wherein the first filter curve, the second filter curve, and the third filter curve are Gaussian equalization curves (first second third filters of Griffiths may be implemented as shown in Figures 11-13)

9. **Claim 26** is rejected under 35 U.S.C. 103(a) as being unpatentable over Griffiths in view of Wiser as applied above, and in further view of Zhou et al (USPN 6999826 B1), hereafter "Zhou".

As detailed above, Griffiths discloses a parametric speaker interface the allows for the graphical manipulation of individual filters in the system. Wiser discloses detail regarding a GUI for controlling an equalizer.

However, Griffiths in view of Wiser does not clearly teach or suggest:

- code for simultaneously displaying equalization curves of a plurality of presets

Zhou discloses a parametric equalizer system with a user interface.

Specifically regarding Claim 26, Zhou in view of the teachings of Griffiths and Ballard teach or at least suggest:

computer readable code (code 32 underlying interface 82, Figure 8, in view of code for displaying multiple handles for multiple filters 24,26,28 in Griffiths, Figure 1) for simultaneously displaying equalization curves (multiple filters, Low Med, High, and corresponding controls 84,86, col. 5, lines 48-59, in view of curve-based manner in which controls for each filter are shown in Griffiths, Figures 6-12, noting that Zhou specifically states that other forms of the equalizer interface may be employed, col. 5, lines 54-56)

for a plurality of presents (values in filter settings in interface 82 of Zhou are default and thus 'preset' parameter values, col. 5, lines 56-59)

To one of ordinary skill in the art at the time the invention was made, it would have been implement multiple filter controls, such as shown in Figures 6-13 of Griffiths in view of Wiser, into a common display that presents default parameters, such as is done for multiple filters in the interface (Figure 8) of Zhou. Such an interface that unites multiple of the implemented filter types (Figures 6-12) and displays default settings of the filters of Griffiths would have, according to the implementation of Zhou, enabled a user to manually modify the equalizer parameters for each band. It is noted that the general concept of such a display is already shown in Figure 1 of Griffiths; Zhou also discloses that such a common interface, as implemented, would have enabled users to be notified of choices that may lead to inferior sound quality. The presentation of equalizer options based on default or preset values would have enabled users to

modify the settings prior to the implementation into the equalizer. Such default parameters are also disclosed as insuring a minimum threshold of sound quality and providing improved sound quality in most instances. The use of the handle based control of Griffiths in such an interface arrangement (82) of Zhou would have enabled the desired adjustments to be correspondingly reflected in the adjustments to the filter characteristic response.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Graham whose telephone number is 571-272-7517. The examiner can normally be reached on Monday-Friday, 8:30 AM to 5:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ag
March 3, 2006

SINH TRAN
SUPERVISORY PATENT EXAMINER